**“How to use” guide for the River Restoration Centre’s monitoring Protocol:**

**Key:**

* **Target/why –** What is the overall objective of the works which are to be monitored?
* **What –** What are you trying to observe from your monitoring? E.g. increased sinuosity and habitat heterogeneity through re-meandering and adding large wood / reduction in nutrient inputs by installing SuDS.
* **How –** What techniques are being used to collect data and what assessment methods are you using? E.g. electro-fishing monitoring diversity, abundance, density, length and age.
* **When –** When are you collecting data (month/season)? Duration/length of monitoring period, how many sampling repeats, how regularly?
* **Who –** Who is the individual and/or organisation responsible for monitoring? Will this be done by more than one organisation?
* **Data –** Do you have access to any pre-project data? E.g. monitoring data from the Environment Agency.
* **Cost –** Cost of monitoring. Are all costs in kind, or are there expenditures for e.g. external lab analysis.
* **Which WFD objective is this helping to achieve –** Which WFD quality element will be addressed by your works? If not WFD, does the work/undertaking aim to improve favourable conditions (for designated sites or species, e.g. SSSI/SAC/SPA/BAP) or does it relate to any other policy drivers (e.g. public engagement, socio-economics, flood management, ecosystem services)
* **Priority and confidence:**Priority: High/Medium/Low importance that your monitoring method can show potential improvement of the related WFD quality element; the favourable condition (i.e. designated site or species such as SSSI, SAC, SPA, BAP); and/or other policy drivers (e.g. socio-economics, flood management, ecosystem services).  
  Confidence: High/Medium/Low confidence that the monitoring is robust, suitable and has the potential to show what you are trying to observe within the CRF project time limit.
* **On target –** Are the monitoring tasks outlined running to schedule? If no, why not?

| **Target/Why**  What is the overall objective of the works which are to be monitored? | **What**  What are you trying to observe from your monitoring? | **How**  What methods are you going to use? | **When**  What periods over the year and how often? (to indicate variability)  And where if possible | **Who**  Who is going to do this? | **Data**  What existing data is available in addition to the monitoring being outlined here | **Cost**  (can be in kind) | **Which WFD quality element is this helping to achieve?**  **If not WFD specify (e.g. SSSI, SAC, BAP or other policy driver)** | **Priority**  High/medium/low linked to WFD or other designation | **On target**  Are the monitoring tasks outlined running to schedule?  (if no specify)  NOTE- can use RRC update questionnaires as a start. | **Key reporting tool and reporting output** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Confidence**  High/medium/low robustness of monitoring |
| **Will be different for each project – what is the project aim for the area being photographed?** | A visual change in (please specify) as a result of (please specify) | Fixed point photography – for methodology, refer to RRC’s Practical river monitoring guidance (2011)  X number of photos (state if known) & indicate if RRC have been provided with a map of points (Y/N) | E.g. Before, immediately after and post works recommended (state dates if known, e.g. month and year) | Project team/ Volunteers | State if fixed point photography or any anecdotal/ ad-hoc photography prior to CRF | Through project/  In-kind | State which of the following, the FPP demonstrates:  a) WFD targets,  b) designated river or  c) other e.g. social science targets | Priority: Please state (only grey if High) | Yes/ No | A time-series of fixed point photographs  State if any other analysis is being done |
| Confidence: Please state (only grey if High) |

* **Reporting tool and reporting output –** How will your collected monitoring data be recorded and the analysis outputs reported?

**Example of Fixed Point Photography:**

| **Target/Why**  What is the overall objective of the works which are to be monitored? | **What**  What are you trying to observe from your monitoring? | **How**  What methods are you going to use? | **When**  What periods over the year and how often? (to indicate variability)  And where if possible | **Who**  Who is going to do this? | **Data**  What existing data is available in addition to the monitoring being outlined here | **Cost**  (can be in kind) | **Which WFD quality element is this helping to achieve?**  If not WFD specify (e.g. SSI, SAC, BAP or other policy driver) | **Priority**  High/medium/low linked to WFD or other designation | **On target**  Are the monitoring tasks outlined running to schedule?  (if no specify)  NOTE- can use rrc update questionnaires as a start. | **Key reporting tool and reporting output** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Confidence**  High/medium/low robustness of monitoring |
| **Reduce urban diffuse pollution, thereby improving water quality, in the Salmons Brook Catchment by installing 6 bio-retention systems (swales, wetlands and filter strips)** | A reduction in diffuse pollution and overall improvement in water quality in the Salmons Brook Catchment | Water quality monitoring-  Temperature , pH  Turbidity, Bacteria (Total Coliforms, E-Coli), Reactive phosphate, Nitrate  Polycyclic aromatic hydrocarbon levels, Ammonia, Dissolved oxygen, Biological oxygen demand, Chemical oxygen demand, Electrical conductivity, Total dissolved solids, Total organic carbon  Water flow , Visual observations, Weather  Mix of field and lab based techniques. | Fortnightly samples from November 2012 to March 2013.  From March 2013 sampled at least monthly on an on-going basis  (see maps attached for location details) | University Collage London- MSc students monitored from Nov 2012 – March 2013  From March 2013 water quality monitored by Thames21 Lab Interns and analysed in our lab at Bow Locks Office  EA Hatfield office-Periodically water samples sent to National Laboratory Service to ensure standard of our lab work and analyse PAH which cannot be conducted in our laboratory | No data is available for the SuDs locations. Some EA data is available from their monitoring stations on the Salmons Brook, much lower down the catchment. | Samples sent to NLS cost £94 per sample for full range of parameters  Each sample analysed at our lab costs approx. £12 for all parameters we are able to test | Addressing WFD failure for water quality and specific pollutants on the Salmons Brook | Priority: High | Yes | To be assessed in end of project evaluation report. |
| Confidence: High |
| **Increase amenity and recreation benefit of sites at which SuDS are created (this is a peripherial aim of the project to bring people closer to water and increase understanding of the links between behaviours at home and water quality in the local waterways)** | Current level of understanding on the urban water cycle and water quality issues  Community engagement  Use of parks  Are volunteers successfully maintaining SuDS?  Success of interpretation and information boards.  Increase in awareness of and action on water quality issues. | Survey (via survey monkey) of local people- gauge awareness of water pollution problems.  “Door drops” of project information. | Survey conducted pre and post works  Survey completed for Glenbrook SuDS (Lonsdale Drive), the Spinney and Groevlands Park. Survey will be completed for a10 project by 26th Jan 2014.  Door drops of project information are ongoing throughout the project | Thames21 staff and volunteers | None in this area. Some work has been done on this for a SuDS project in Camborne, Cambridgeshire | In kind staff time | Ecosystems services | Priority: High (but does not directly link to reason for WFD failure) | Yes | As above |
| Confidence: High |
| **Increase biodiversity and habitat potential of streams in Salmons Brook Catchment where SuDS are created** | An increase in habitat potential of sites-  Increase in invertebrates | Ecological surveys conducted by qualified ecologists (Extended Phase 1habitat survey) | Ecology surveys conducted at each site before works commence and at completion of project in March 2015 | Ecological consultant | None | £620 total for extended Phase 1 habitat survey of two sites  Invertebrate surveys- in kind | Addressing WFD failure for water quality and specific pollutants | Priority: High | Yes | As above |
| Confidence: High |
| Invertebrate survey including Simpson and Shannon Index calculations | Invertebrate surveys conducted 3 times per year at each SuDS site | Queen Mary Uni- MSc student | Priority: High | Yes |
| Confidence: Medium (Ideally would continue beyond project timescale to indicate long term change) |